REMARKS

Election / Restrictions

In view of the election of claims 9 to 13 for further prosecution in this application, claims 1 to 8 are now canceled without prejudice.

Claim Rejections – 35 USC § 103

The Examiner rejected claims 9 to 13 as unpatentable over Hashiguchi et al. (US 5,486,243).

Claims 9 to 13 have been amended to claim a can end made of a specified alloy, rather than the alloy itself. This amendment is believed to overcome the obviousness rejection for the following reasons.

Hashiguchi et al. discloses an alloy that is intended for use as "an automobile body sheet and for making formed parts of household electrical apparatuses" (Col. 1, lines 8 and 9). For such applications, the objective is to produce an alloy that "has a high level of strength and excels in formability" (Col. 1, line 67), and one that "helps to achieve satisfactory weldability" (Col. 2, line 2). In contrast, the important considerations for alloys intended for the formation of can ends are "mechanical strength, earing and the ability to be released in a die after forming" (page 1, lines 22 and 23 of the present application). While high mechanical strength may be an objective in both applications, the other criteria differ, so a person skilled in the art would not consider the alloy disclosed in Hashiguchi et al. to be suitable for the production of can ends. As noted in the present application, alloys used for can ends have had to be "highly engineered and rigidly controlled" (page 1, lines 19 and 20). Also, the term "high strength" used in connection with automobile body parts may have a completely different meaning from "high strength" used in connection with can ends because the applications and demands are so different.

Accordingly, a person skilled in the art would not see the teaching of Hashiguchi et al. as in any way meaningful for the production of can ends (as now claimed by the amended claims).

Furthermore, while the alloy ranges of Hashiguchi et al. may overlap those of the present invention, the overlap is marginal, there is no teaching of Fe to Si ratios (which are important in the present invention) and there are no Examples in Hashiguchi et al. that fall within the specification of the alloys of the present invention. A person skilled in the art

would therefore not likely derive an alloy composition of the present invention from the teaching of Hashiguchi et al.

The following table compares the alloys of the present invention and of Hashiguchi et al.

Elements	Present invention	Hashiguchi et al.
Si	0.6 – 2.0	N/S
Fe	0.9 – 2.4	N/S
Ratio Fe: Si	1.2 – 1.8 : 1	N/S
Total Si + Fe	1.5 – 4.4	0.3 – 2.0
Cu	0 – 0.4	0.02 – 0.5
Mn	0 – 1.5	0.02 – 0.5
Mg	0 – 5.0	3 - 10
Zn	0 – 0.5	N/S
Cr	0 – 3.5	0.02 – 0.5
Ti	0 – 0.1	0.02 – 0.5
Zr	N/S	0.02 – 0.5
Al	Balance	Balance

In the above table N/S means "not specified".

From this table, it will be noticed that for the important elements Si and Fe (total) and Mg, there is little overlap and, as already noted, there is no direction in Hashiguchi et al. regarding the Fe : Si ratio. The ratios calculated from TABLE 1 of Example 3 of Hashiguchi et al. show a variation of 1 : 1 to 2 : 1, thus embracing ratios outside those specified in the present invention while directing no attention whatsoever to the importance of such ratios.

All of the Examples in Hashiguchi et al. have Mg levels higher than those required in the present invention (5.5 wt.% or higher). Thus, Hashiguchi et al. stresses high levels of Mg because "The strength of the material is mainly obtained from the solid-solution strengthening mechanism of the Mg atoms, the strength and elongation of the material increasing in proportion to the Mg content" (Col. 3, lines 4 to 7).

The surprising result on which the invention of Hashiguchi et al. is based is that: "with an Mg content of about 3 to 10 wt % and with an Fe-Si amount of not more than about 2 wt %, it is possible to create a material having a formability equivalent to that of new raw metal, if the material is subjected to lubrication processing" (Col. 3, lines 41 to 45). Thus, the upper limit of Fe + Si is critical and must not be exceeded and, even then, special processing is required for good formability. It is emphasized that "it is desirable for the Fe-Si amount to be kept as small as possible" (Col. 3, lines 48 and 49).

In contrast, the inventors of the present invention have found a way of increasing the amounts of Fe and Si while still producing an alloy suitable for a can end. The interplay between the iron and silicon is stressed, thus making the ratio of these elements important. For example, it is stated on page 4 at lines 21 to 27 that:

> "By having the high levels of iron and silicon in the above ratio, it has been found that adequate silicon is left in solution to remove at the time of pre-heat any iron that is not precipitated out during casting operation. In this way the problem of anisotropy is successfully resolved while allowing a composition that includes high levels of iron and silicon."

The combined Fe and Si contents of the can end alloy of the invention may range up to 4.4 wt.%, more than double the amount allowed by Hashiguchi et al.

In summary, a person skilled in the art would not see Hashiguchi et al. as relevant to the present invention because it relates to a different field (car parts and electrical apparatus) rather than can ends, it emphasizes the use of low amounts of Fe + Si, it emphasizes high levels of Mg, and places no importance whatsoever on the ratio of Fe to Si, and it discloses no specific alloys falling within the specification of the claimed invention. The person of skill would not find Hashiguchi et al. to be a relevant document and, even if located and studied, would not be lead to the present invention from the description and specification of Hashiguchi et al.

Accordingly, favorable reconsideration and allowance of the application is requested.

Respectfully,

Christopher C. Dunham

Christopher C. Dunham
Reg. No. 22,031
Attorney for Applicants
Tel. (212) 278-0400

I hereby certify that this paper is being deposited this date with the U.S. Postal Service as first class mail addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Christopher C. Dunham

Christopher C. Dunham
Reg. No. 22,031 Date JULY 17, 2007